

Back of Leg: FAQs, MCQs and Viva Voce

Frequently Asked Questions – Back of Leg

1. What are the two groups of muscles in the posterior compartment of the leg?

? **Superficial group:** *Gastrocnemius, Soleus, Plantaris.*

? **Deep group:** *Popliteus, Flexor digitorum longus, Tibialis posterior, Flexor hallucis longus.*

2. What is the nerve supply of all muscles in the back of the leg?

? **Tibial nerve (L4–S3).**

3. What is the main action of these muscles?

? **Plantar flexion of the ankle and flexion of the toes.**

4. What is the strongest tendon in the human body?

? **Tendo calcaneus (Achilles tendon).**

5. Which muscles form the tendo calcaneus?

? *Gastrocnemius, Soleus, and sometimes Plantaris.*

6. Where is the tendo calcaneus inserted?

? **Posterior surface of the calcaneum.**

7. Which artery runs with the tibial nerve in the back of the leg?

? **Posterior tibial artery.**

8. Where can the posterior tibial pulse be felt?

? **Behind the medial malleolus, midway between the malleolus and tendo calcaneus.**

9. What are the terminal branches of the posterior tibial artery?

? **Medial and lateral plantar arteries.**

10. What is the chief artery of the lateral compartment?

? **Peroneal (fibular) artery.**

11. What are the structures that pass beneath the flexor retinaculum (medial ? lateral)?

? *Tibialis posterior, Flexor digitorum longus, Posterior tibial artery, Tibial nerve, Flexor hallucis longus.*

? Mnemonic: **"Tom, Dick And Very Nervous Harry."**

12. What is the clinical importance of the flexor retinaculum?

? It forms the **tarsal tunnel**, whose compression produces **tarsal tunnel syndrome**.

13. Which muscle unlocks the knee joint?

? **Popliteus.**

14. Which muscle maintains the medial longitudinal arch of the foot?

? **Tibialis posterior.**

15. Which muscle maintains the transverse arch of the foot?

? **Peroneus longus.**

16. Which artery gives the nutrient branch to the tibia?

? **Posterior tibial artery.**

17. Which artery gives the nutrient branch to the fibula?

? **Peroneal (fibular) artery.**

18. What is the "peripheral heart" of the body?

? **Soleus muscle**, because its contractions pump venous blood upward against gravity.

19. What are the boundaries of the posterior compartment of the leg?

? *Anteriorly:* Tibia, fibula, interosseous membrane.

? *Posteriorly:* Deep fascia.

? *Laterally & medially:* Intermuscular septa.

20. What are the main clinical conditions related to the back of the leg?

? *Tarsal tunnel syndrome, Achilles tendon rupture, posterior-compartment syndrome, calcaneal bursitis, and deep vein thrombosis.*

21. What is the effect of tibial nerve injury?

? *Loss of plantar flexion and inversion; anesthesia over the sole; calcaneovalgus deformity.*

22. Why is the sural nerve used for grafting?

? It is **superficial, purely sensory, and easily harvested** with minimal morbidity.

23. What is the popliteal–plantar arterial continuity?

? *Popliteal ? Posterior tibial ? Lateral plantar ? Plantar arch.*

24. What is the importance of perforating branch of peroneal artery?

? It **joins the anterior tibial system**, maintaining collateral supply around the ankle.

25. Why are calf muscles called the “triceps surae”?

? Because *gastrocnemius* (two heads) + *soleus* (one head) = three-headed muscle of the leg.

Multiple Choice Questions – Back of Leg

1. The posterior compartment of the leg is supplied by which nerve?

- A. Common peroneal nerve
- B. Tibial nerve
- C. Superficial peroneal nerve
- D. Deep peroneal nerve

? **Answer:** B – *Tibial nerve*

? It supplies both superficial and deep groups of posterior leg muscles.

2. The strongest tendon in the human body is:

- A. Plantaris tendon

B. Flexor hallucis longus tendon

C. Tendo calcaneus

D. Tibialis posterior tendon

? **Answer:** C – *Tendo calcaneus (Achilles tendon)*

? Formed by gastrocnemius, soleus, and plantaris.

3. The artery accompanying the tibial nerve in the back of leg is:

A. Anterior tibial artery

B. Posterior tibial artery

C. Peroneal artery

D. Popliteal artery

? **Answer:** B – *Posterior tibial artery.*

4. The pulse of posterior tibial artery is palpated:

A. In front of medial malleolus

B. Behind lateral malleolus

C. Behind medial malleolus

D. Over dorsum of foot

? **Answer:** C – *Behind medial malleolus (between malleolus and tendo calcaneus).*

5. The muscle that unlocks the knee joint is:

A. Popliteus

B. Soleus

C. Gastrocnemius

D. Tibialis posterior

? **Answer:** A – *Popliteus*

? Rotates femur laterally on tibia to initiate flexion.

6. The chief plantar flexors of the foot are:

A. Tibialis anterior and extensor digitorum longus

B. Gastrocnemius and soleus

C. Tibialis posterior and peroneus tertius

D. Flexor digitorum longus and tibialis anterior

? **Answer:** B – *Gastrocnemius and soleus.*

7. Which muscle supports the medial longitudinal arch of the foot?

- A. Peroneus longus
- B. Tibialis posterior
- C. Tibialis anterior
- D. Flexor digitorum longus

? **Answer:** B – *Tibialis posterior*.

8. The peroneal artery is a branch of:

- A. Anterior tibial artery
- B. Posterior tibial artery
- C. Popliteal artery
- D. Lateral plantar artery

? **Answer:** B – *Posterior tibial artery*.

9. Which muscle forms the floor of the popliteal fossa?

- A. Gastrocnemius
- B. Soleus
- C. Popliteus
- D. Plantaris

? **Answer:** C – *Popliteus*.

10. Which of the following muscles is absent in some individuals?

- A. Soleus
- B. Plantaris
- C. Gastrocnemius
- D. Tibialis posterior

? **Answer:** B – *Plantaris*.

11. Which of the following muscles does NOT cross the ankle joint?

- A. Gastrocnemius
- B. Soleus
- C. Tibialis posterior
- D. Flexor hallucis longus

? **Answer:** A – *Gastrocnemius*

? Acts on knee and ankle through Achilles tendon but its fleshy belly does not cross ankle directly.

12. The artery supplying the lateral compartment of leg is:

- A. Anterior tibial artery
- B. Peroneal artery
- C. Posterior tibial artery
- D. Dorsalis pedis artery

? **Answer:** B – *Peroneal artery*.

13. Which of the following structures passes deep to the flexor retinaculum?

- A. Peroneus longus
- B. Tibialis anterior
- C. Tibialis posterior
- D. Peroneus brevis

? **Answer:** C – *Tibialis posterior*.

14. The muscle forming the “peripheral heart” of the leg is:

- A. Gastrocnemius
- B. Soleus
- C. Plantaris
- D. Tibialis posterior

? **Answer:** B – *Soleus*

? Helps venous return by compressing deep veins.

15. Which nerve supplies the heel (calcaneal) region of the foot?

- A. Saphenous nerve
- B. Medial plantar nerve
- C. Sural nerve
- D. Medial calcaneal branch of tibial nerve

? **Answer:** D – *Medial calcaneal branch of tibial nerve*.

16. Which structure lies deepest in the tarsal tunnel (posterior ? anterior)?

- A. Tibialis posterior
- B. Flexor digitorum longus
- C. Tibial nerve
- D. Flexor hallucis longus

? **Answer:** D – *Flexor hallucis longus*.

17. Injury to the tibial nerve in the posterior leg causes:

- A. Foot drop
- B. Calcaneovalgus deformity
- C. Eversion deformity
- D. Clubfoot

? **Answer:** B – *Calcaneovalgus deformity* (loss of plantar flexion + inversion).

18. Which artery supplies the fibula?

- A. Posterior tibial artery
- B. Peroneal artery
- C. Anterior tibial artery
- D. Dorsalis pedis artery

? **Answer:** B – *Peroneal artery*.

19. The venous drainage of the lateral side of foot is mainly through:

- A. Great saphenous vein
- B. Small saphenous vein
- C. Anterior tibial vein
- D. Peroneal vein

? **Answer:** B – *Small saphenous vein*.

20. The muscle that flexes the great toe and maintains the medial arch is:

- A. Flexor hallucis longus
- B. Flexor digitorum longus
- C. Tibialis posterior
- D. Soleus

? **Answer:** A – *Flexor hallucis longus*.

Viva Voce – Back of Leg

1. What are the two groups of muscles in the back of leg?

? *Superficial group: Gastrocnemius, Soleus, Plantaris.*

? *Deep group: Popliteus, Flexor digitorum longus, Tibialis posterior, Flexor hallucis longus.*

2. What is the nerve supply of all muscles of the back of the leg?

? *Tibial nerve (L4–S3).*

3. What is the chief action of the posterior compartment muscles?

? *Plantar flexion of foot and flexion of toes.*

4. Name the strongest tendon in the body.

? *Tendo calcaneus (Achilles tendon).*

5. Which muscles form the tendo calcaneus?

? *Gastrocnemius, Soleus, and sometimes Plantaris.*

6. Into which bone is the tendo calcaneus inserted?

? *Posterior surface of the calcaneum.*

7. What is the function of the soleus muscle?

? *Powerful plantar flexion and maintenance of upright posture (“peripheral heart”).*

8. What is the function of the gastrocnemius muscle?

? *Plantar flexion of foot and flexion of knee.*

9. What is the function of plantaris?

? *Weak plantar flexion; assists knee flexion.*

10. Which muscle unlocks the knee joint?

? *Popliteus.*

11. What is the function of the popliteus muscle?

? *Lateral rotation of femur on tibia during flexion (unlocking of knee).*

12. Which muscles maintain the medial longitudinal arch of foot?

? *Tibialis posterior and flexor hallucis longus.*

13. Which muscle maintains the lateral longitudinal arch of foot?

? *Peroneus longus and flexor digitorum longus.*

14. Which artery runs along with the tibial nerve in the posterior compartment?

? *Posterior tibial artery.*

15. Where can the posterior tibial pulse be felt?

? *Behind the medial malleolus, between the malleolus and tendo calcaneus.*

16. What are the terminal branches of posterior tibial artery?

? *Medial and lateral plantar arteries.*

17. What are the main branches of peroneal artery?

? *Muscular, nutrient to fibula, perforating, communicating, and lateral calcaneal.*

18. Which structure lies deepest under the flexor retinaculum?

? *Flexor hallucis longus tendon.*

19. What is the order of structures passing under the flexor retinaculum?

? *Tibialis posterior, Flexor digitorum longus, Posterior tibial artery, Tibial nerve, Flexor hallucis longus.*

? Mnemonic: "Tom, Dick And Very Nervous Harry."

20. What is tarsal tunnel syndrome?

? *Compression of tibial nerve under the flexor retinaculum, causing pain and numbness in sole.*

21. Which muscle acts as a “peripheral heart”?

? *Soleus muscle.*

22. What are the main actions of flexor hallucis longus?

? *Flexion of great toe, plantar flexion of ankle, maintenance of medial arch.*

23. What are the main actions of tibialis posterior?

? *Plantar flexion, inversion, and maintenance of medial longitudinal arch.*

24. What happens when the tibial nerve is injured in the leg?

? *Loss of plantar flexion and inversion; anesthesia of sole; calcaneovalgus deformity.*

25. Why is the sural nerve used for nerve grafting?

? *Because it is superficial, purely sensory, and easily accessible with minimal functional loss.*

26. What is the importance of peroneal artery in occlusion of posterior tibial artery?

? *Provides collateral circulation to the foot through its perforating and communicating branches.*

27. What is the main function of tendo calcaneus?

? *Transmits the powerful contraction of calf muscles to the heel, enabling walking, running, and jumping.*

28. What is the function of plantaris tendon in reconstructive surgery?

? *Used for tendon grafts due to its long, slender form.*

29. What is the clinical significance of posterior compartment tightness?

? *May lead to posterior-compartment syndrome or restricted dorsiflexion.*

30. What is the surface marking of posterior tibial artery?

? *From midpoint between medial malleolus and tendo calcaneus to midway between medial malleolus and heel.*

This completes the **Viva Voce section for the Back of Leg**, covering all key anatomical, functional, and clinical points.